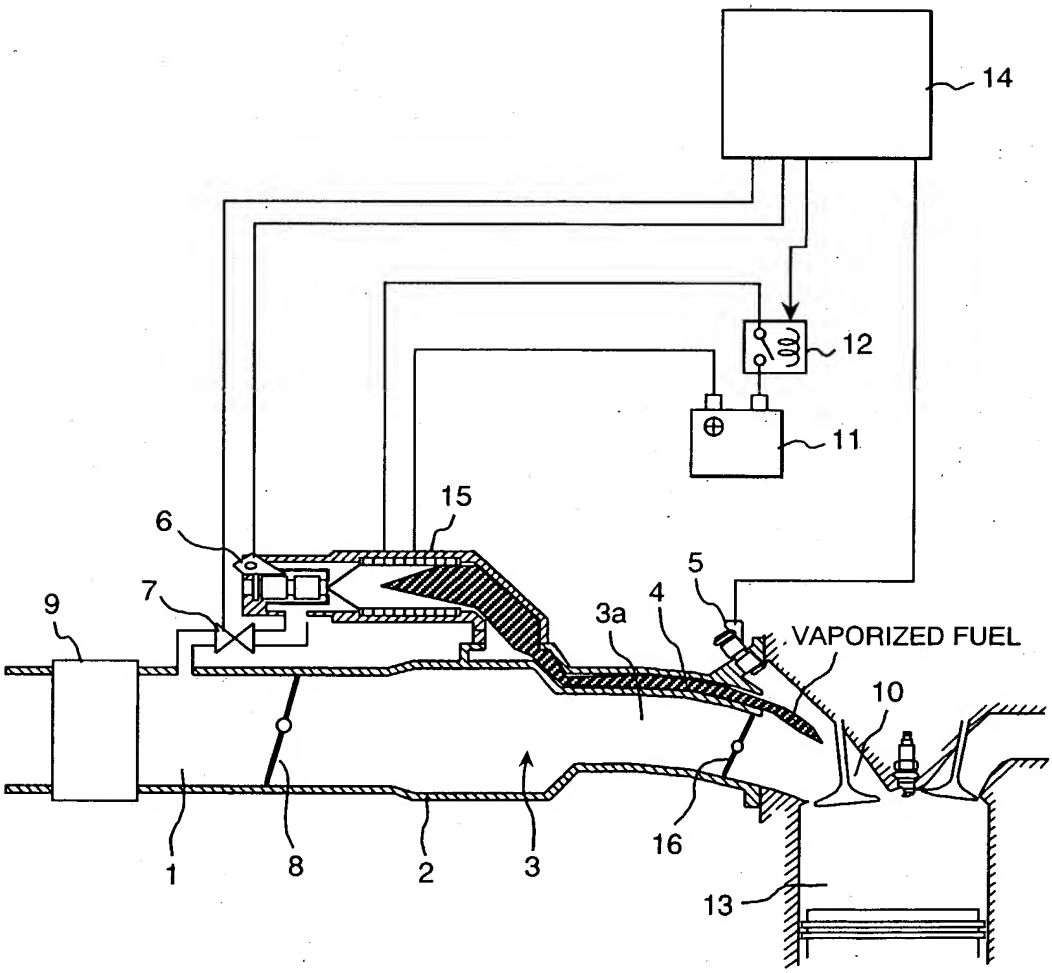
FIG. 1



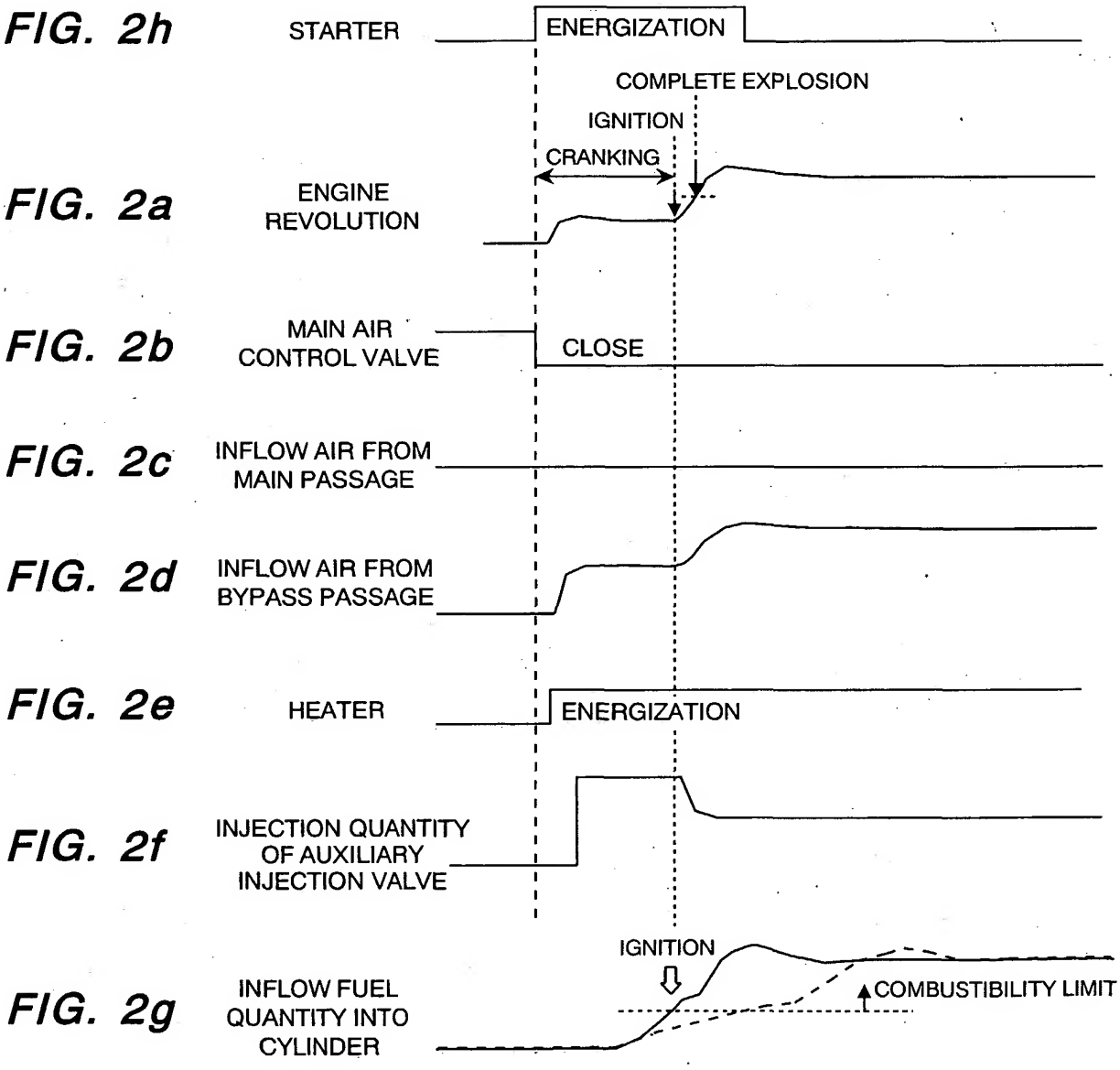


FIG. 2h
STARTER
ENERGIZATION
COMPLETE EXPLOSION
IGNITION
CRANKING
FIG. 2a
ENGINE REVOLUTION
FIG. 2b
MAIN AIR CONTROL VALVE
CLOSE
FIG. 2c
INFLOW AIR FROM MAIN PASSAGE
FIG. 2d
INFLOW AIR FROM BYPASS PASSAGE
FIG. 2e
HEATER
ENERGIZATION
FIG. 2f
INJECTION QUANTITY OF AUXILIARY INJECTION VALVE
IGNITION
COMBUSTIBILITY LIMIT
FIG. 2g
INFLOW FUEL QUANTITY INTO CYLINDER

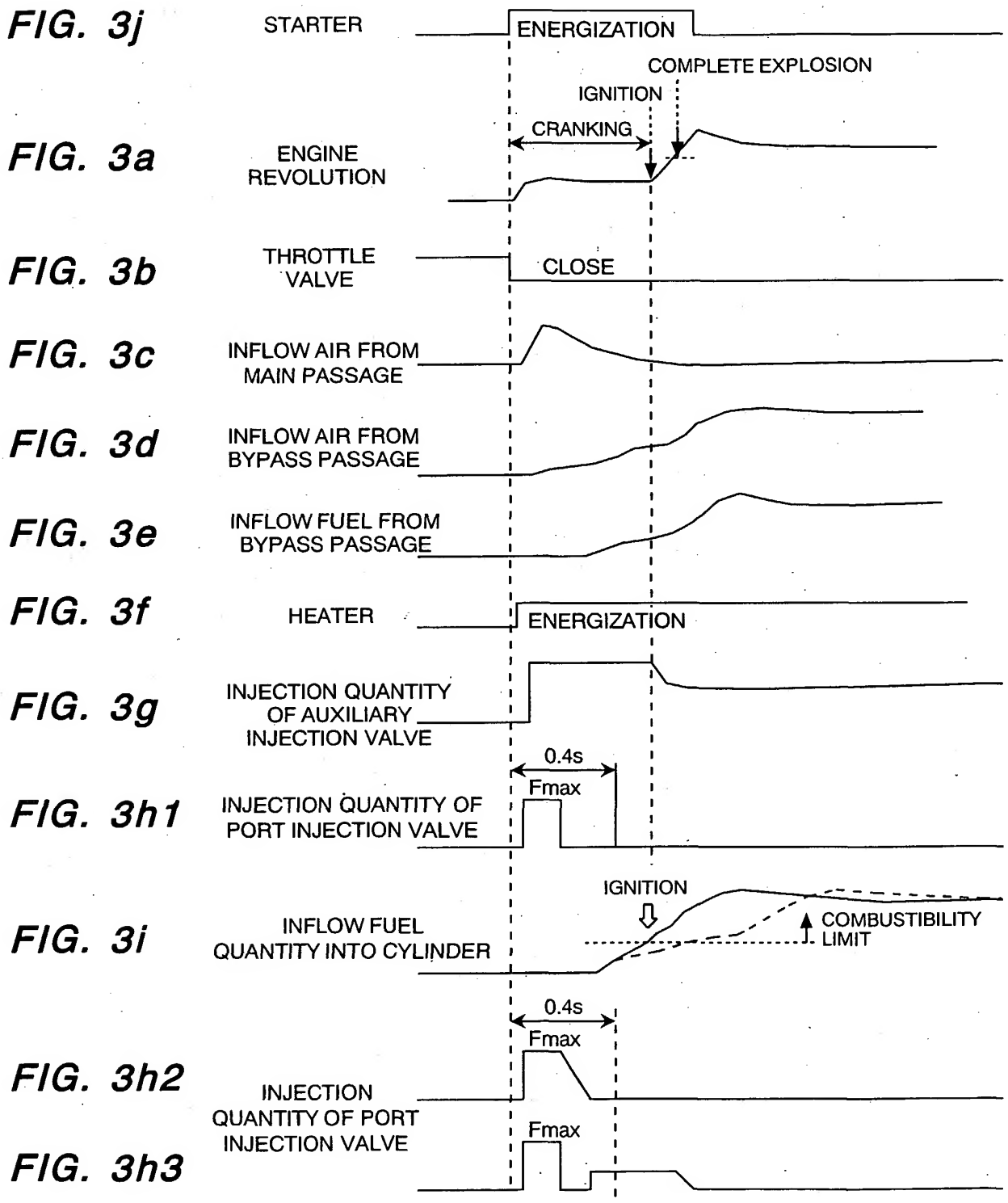


FIG. 3j
STARTER
ENERGIZATION
COMPLETE EXPLOSION
IGNITION
CRANKING
FIG. 3a
ENGINE REVOLUTION
FIG. 3b
THROTTLE VALVE
CLOSE
FIG. 3c
INFLOW AIR FROM MAIN PASSAGE
FIG. 3d
INFLOW AIR FROM BYPASS PASSAGE
FIG. 3e
INFLOW FUEL FROM BYPASS PASSAGE
FIG. 3f
HEATER
ENERGIZATION
FIG. 3g
INJECTION QUANTITY OF AUXILIARY INJECTION VALVE
0.4s
Fmax
FIG. 3h1
INJECTION QUANTITY OF PORT INJECTION VALVE
IGNITION
FIG. 3i
INFLOW FUEL QUANTITY INTO CYLINDER
COMBUSTIBILITY LIMIT
0.4s
Fmax
FIG. 3h2
INJECTION QUANTITY OF PORT INJECTION VALVE
Fmax
FIG. 3h3

FIG. 4f

FIG. 4g

FIG. 4a

FIG. 4b

FIG. 4c

FIG. 4d

FIG. 4e

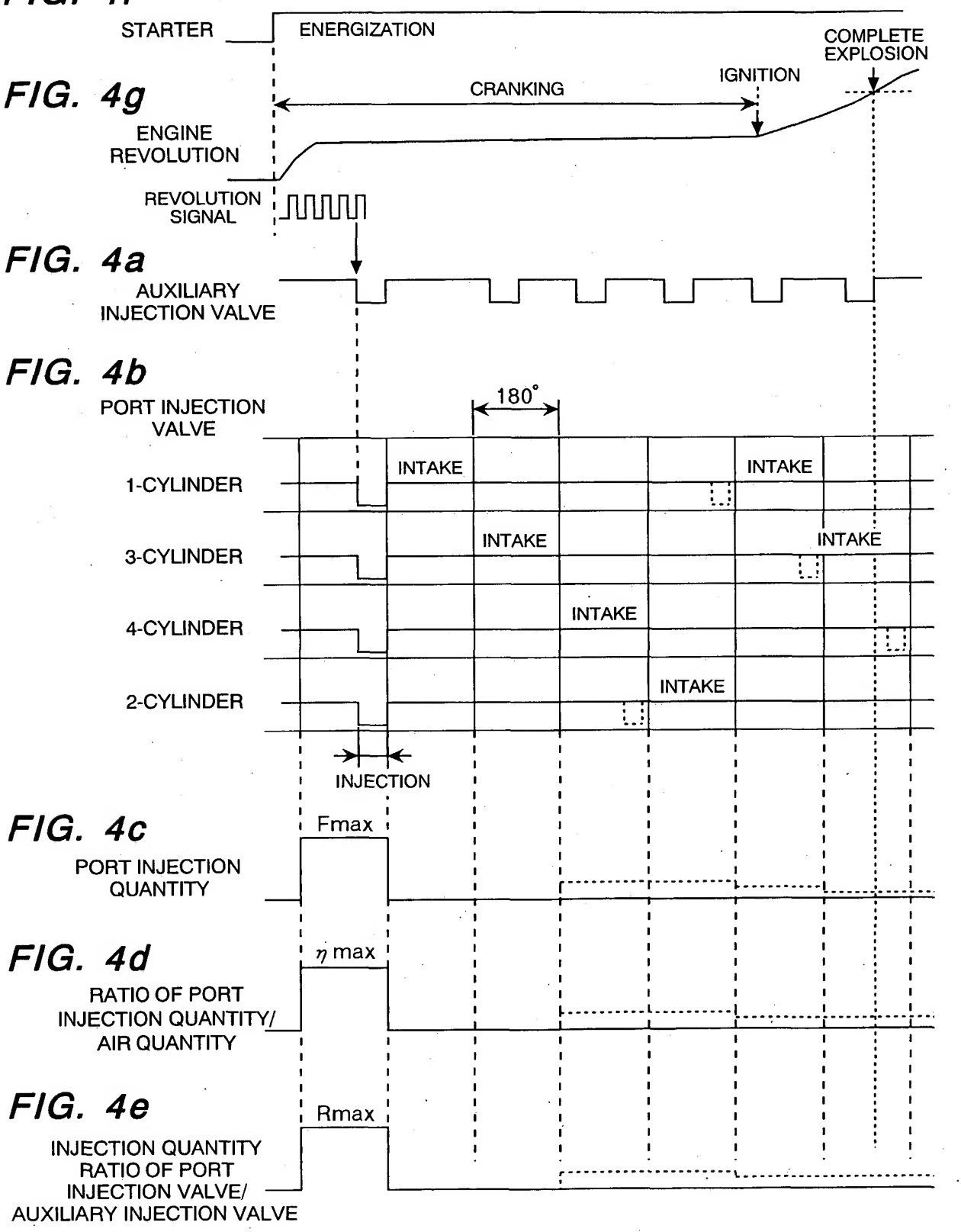


FIG. 5

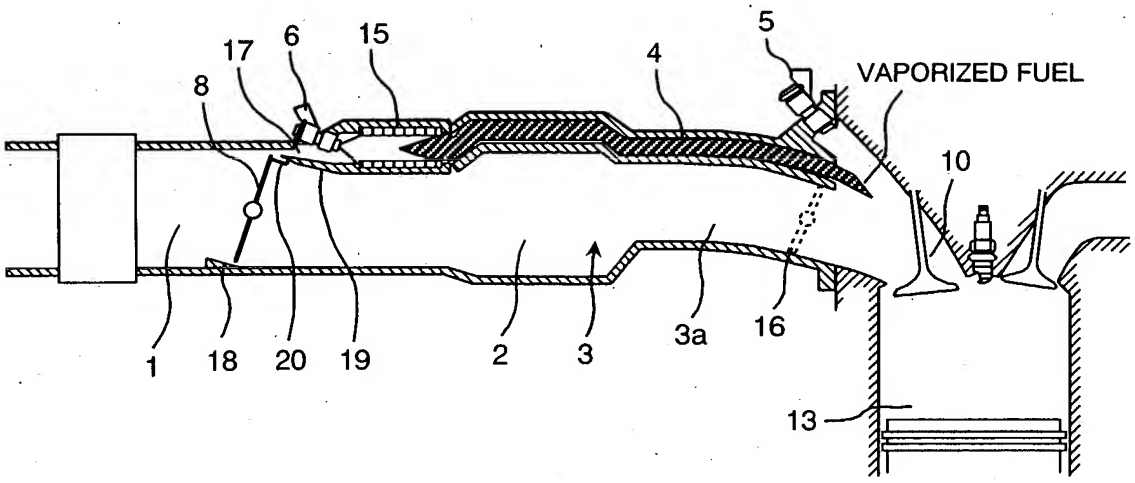
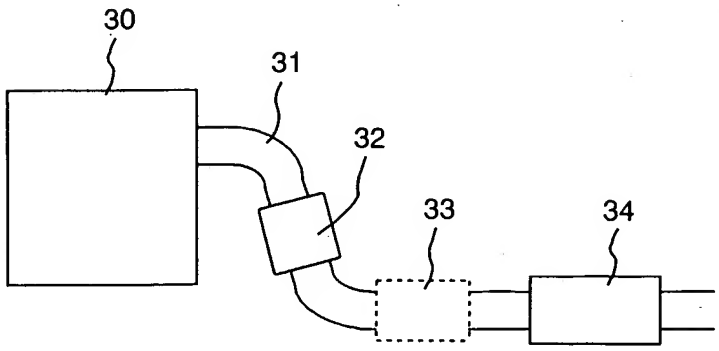


FIG. 6



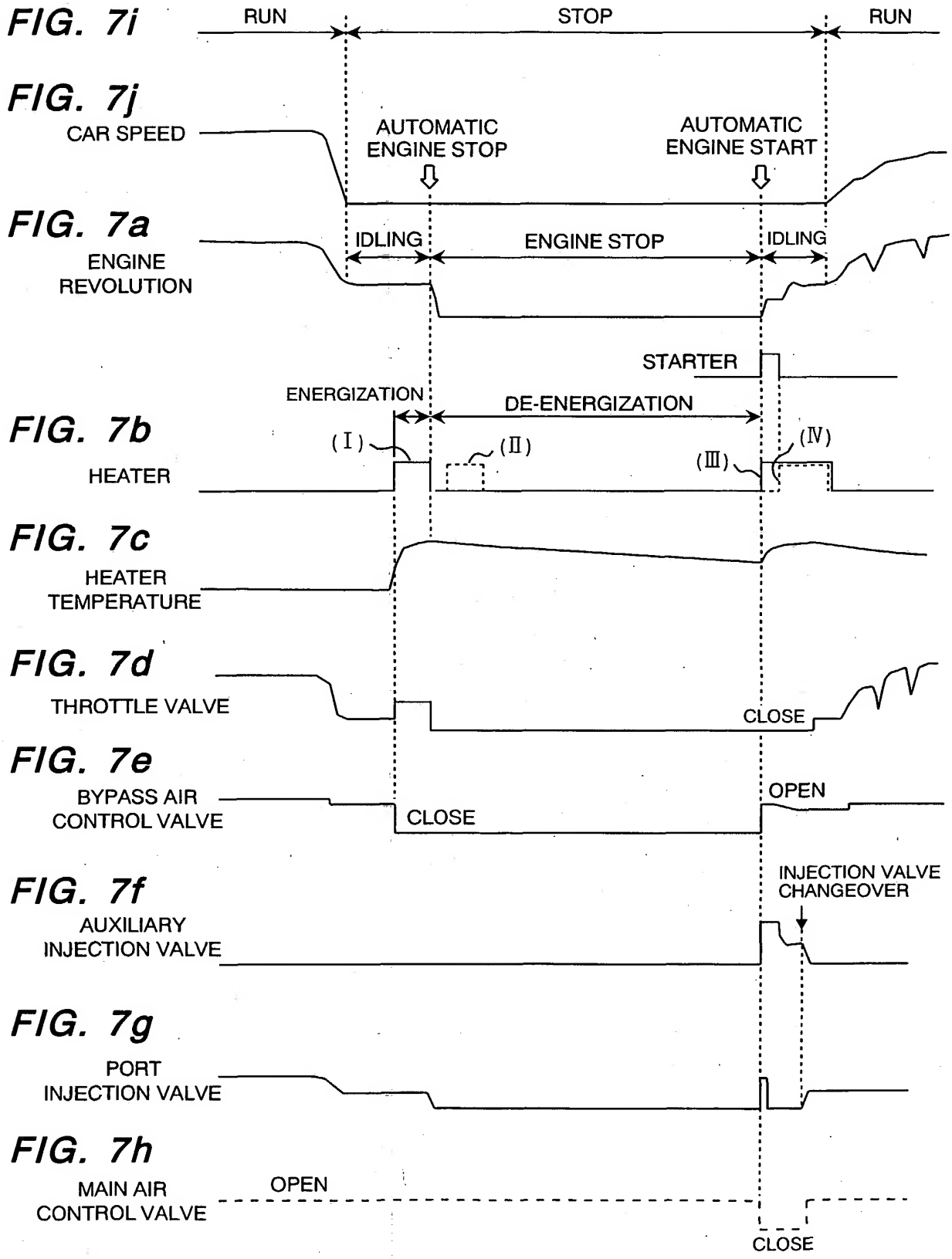


FIG. 7i
RUN
STOP
RUN
FIG. 7j
CAR SPEED
AUTOMATIC ENGINE STOP
AUTOMATIC ENGINE START
FIG. 7a
ENGINE REVOLUTION
IDLING
ENGINE STOP
IDLING
STARTER
ENERGIZATION
DE-ENERGIZATION
FIG. 7b
HEATER
(I)
(II)
(III)
(IV)
FIG. 7c
HEATER TEMPERATURE
FIG. 7d
THROTTLE VALVE
CLOSE
FIG. 7e
BYPASS AIR CONTROL VALVE
CLOSE
OPEN
FIG. 7f
AUXILIARY INJECTION VALVE
INJECTION VALVE CHANGEOVER
FIG. 7g
PORT INJECTION VALVE
FIG. 7h
MAIN AIR CONTROL VALVE
OPEN
CLOSE

FIG. 8

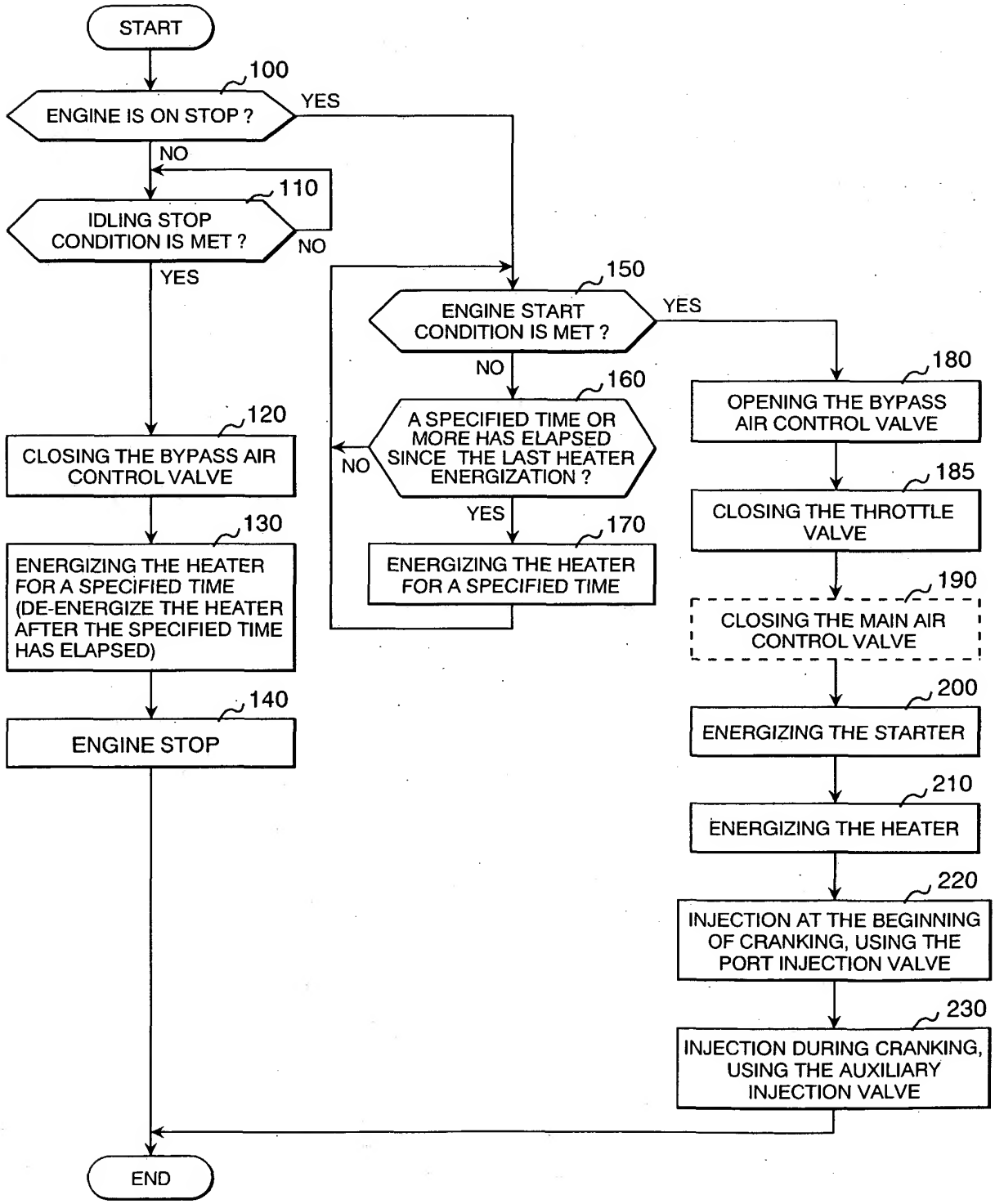

START
100
ENGINE IS ON STOP ?
YES
NO
110
IDLING STOP CONDITION IS MET ?
NO
YES
120
CLOSING THE BYPASS AIR CONTROL VALVE
130
ENERGIZING THE HEATER FOR A SPECIFIED TIME (DE-ENERGIZE THE HEATER AFTER THE SPECIFIED TIME HAS ELAPSED)
140
ENGINE STOP
150
ENGINE START CONDITION IS MET ?
YES
NO
160
A SPECIFIED TIME OR MORE HAS ELAPSED SINCE THE LAST HEATER ENERGIZATION ?
NO
YES
170
ENERGIZING THE HEATER FOR A SPECIFIED TIME
180
OPENING THE BYPASS AIR CONTROL VALVE
185
CLOSING THE THROTTLE VALVE
190
CLOSING THE MAIN AIR CONTROL VALVE
200
ENERGIZING THE STARTER
210
ENERGIZING THE HEATER
220
INJECTION AT THE BEGINNING OF CRANKING, USING THE PORT INJECTION VALVE
230
INJECTION DURING CRANKING, USING THE AUXILIARY INJECTION VALVE
END

FIG. 9

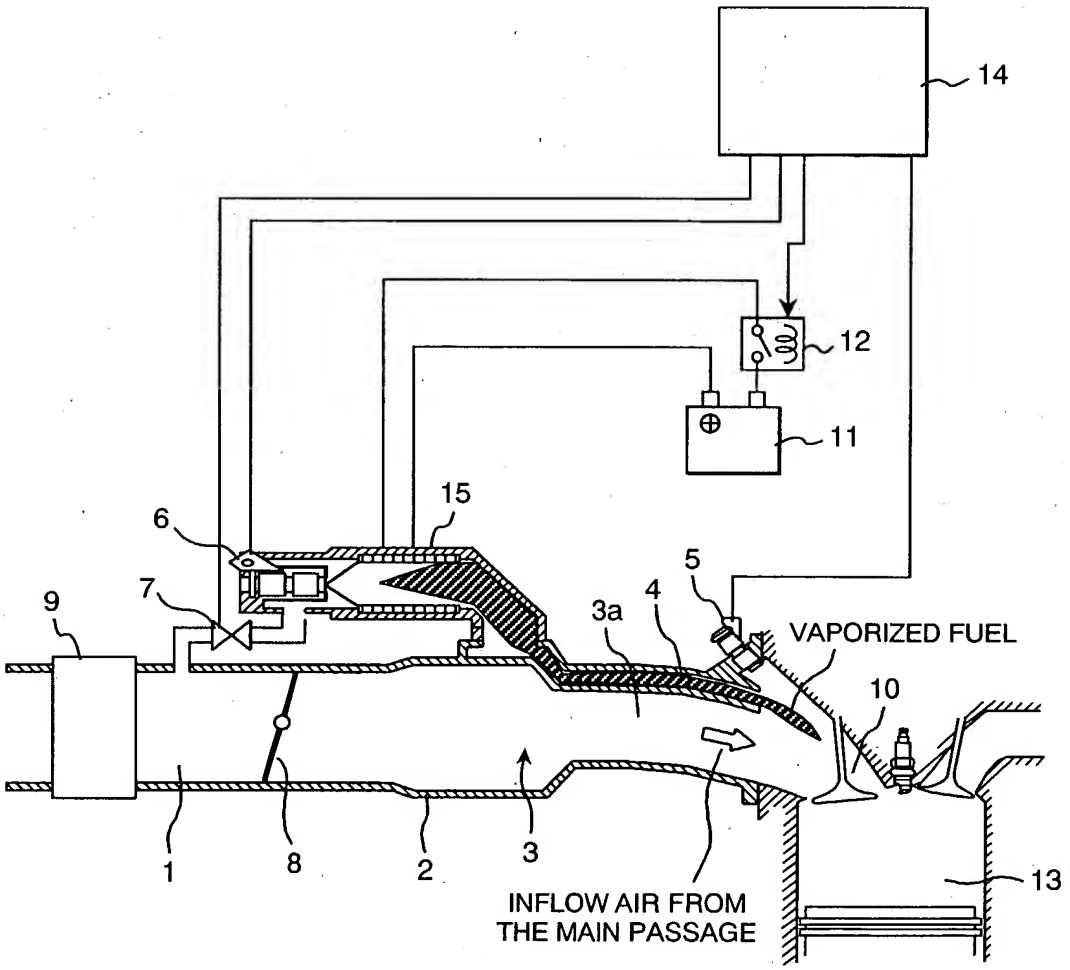

14
12
11
15
6
7
9
5
4
3a
VAPORIZED FUEL
10
1
8
2
3
13
INFLOW AIR FROM
THE MAIN PASSAGE

FIG. 10h

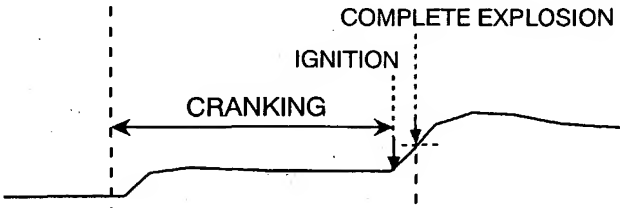


FIG. 10a

REVOLUTION SPEED

FIG. 10b

ENGINE SUCTION AIR QUANTITY

FIG. 10c

INCOMING AIR FROM MAIN PASSAGE

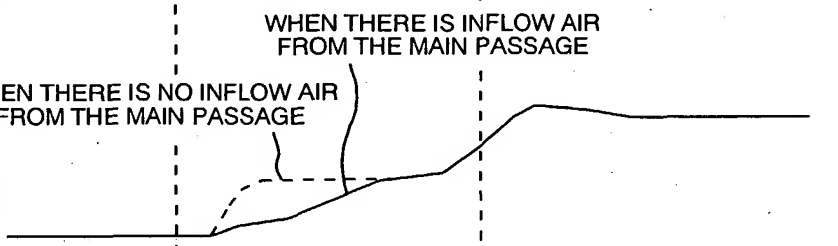


FIG. 10d

INFLOW AIR FROM BYPASS PASSAGE

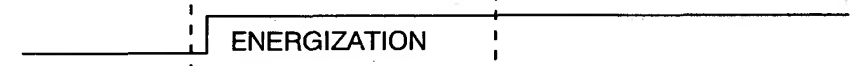


FIG. 10e

HEATER

FIG. 10f

INJECTION QUANTITY FROM AUXILIARY INJECTION VALVE

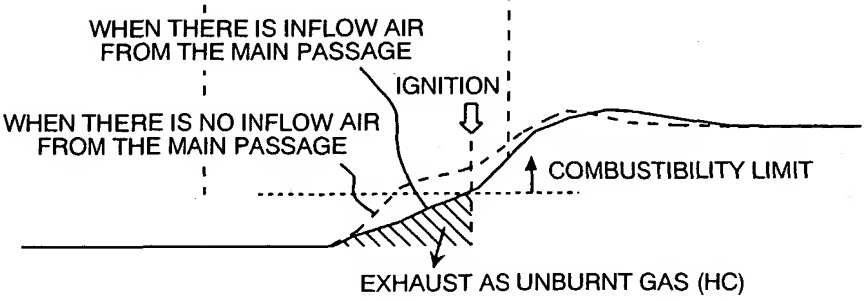


FIG. 10g

INFLOW FUEL QUANTITY INTO CYLINDER

FIG. 11

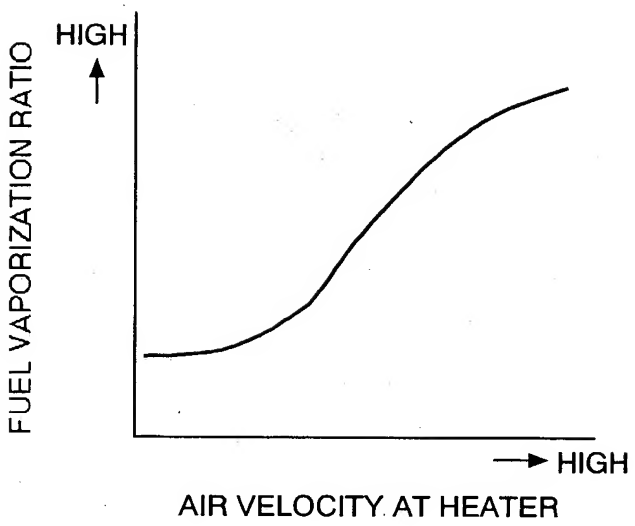


FIG. 12a

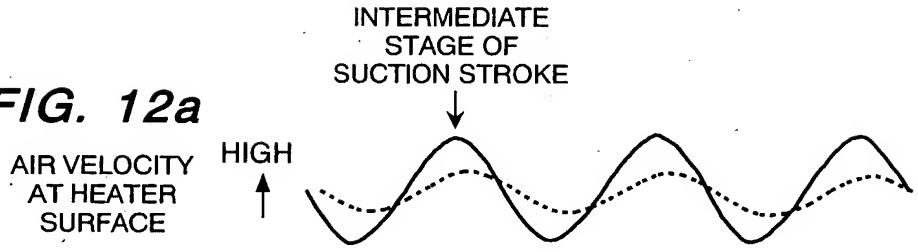
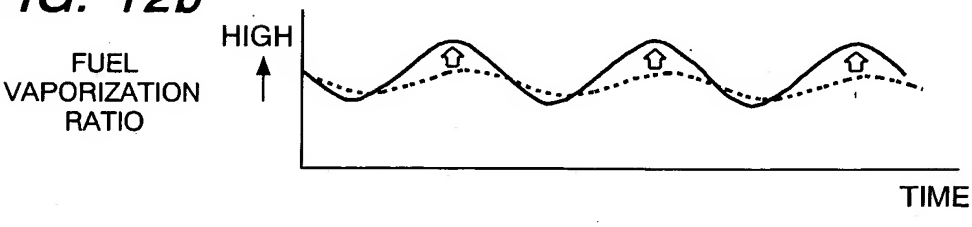


FIG. 12b



..... WHEN THERE IS INFLOW AIR FROM THE MAIN PASSAGE

——— WHEN THERE IS NO INFLOW AIR FROM THE MAIN PASSAGE